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ABSTRACT

An evaluation of a school reform project in one kindergarten through grade 5 school in Atlanta (Georgia) is presented to demonstrate how triangulation of qualitative and quantitative evaluation approaches can enhance understanding of a reform effort. During the 1991-92 school year, the final year of the project, Fowler Drive Elementary School served 484 students and had a staff of 25 teachers, 1 principal, 1 assistant principal, 1 media specialist, and 1 half-time project director. Each methodology was conducted by a separate evaluator who was trained and experienced in the approach. The qualitative evaluator used student, parent, teacher, and administrator interviews and open-ended questionnaire data, as well as observational field notes. The quantitative researcher studied effects on students as represented by standardized test scores and different measures of attitude changes of students and teachers. Considered together, data from both approaches provide a broader understanding of the impacts of the reform in schools. Neither data set was used simply to gain a greater understanding of the other, but, instead, each data set was used to understand different aspects of the implementation of the reform. One figure illustrates a model of the school reform process. (SLD)

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ISSUES IN EDUCATIONAL REFORM: HOW TRIANGULATING QUALITATIVE AND QUANTITATIVE EVALUATION METHODS CAN ENHANCE UNDERSTANDING

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Abstract

The purpose of this paper is to present an evaluation of a school reform project in one kindergarten through fifth grade elementary school to demonstrate how triangulation of qualitative and quantitative evaluation approaches can enhance understanding of a reform effort. Each methodology was conducted by a separate evaluator who was trained, experienced, and had expertise in the approach. Considered together, data from both approaches provided a broader understanding of the impacts of the reform in schools. Neither data set was used simply to gain greater understanding of the other data set, but instead, each data set was used to understand different aspects of the implementation of the reform.

Introduction

The American public and educators feel that there is a critical need for reform in public schools. This is not a new idea since each of the past three decades has spawned a new surge of reform to address problems identified in schools relative to emerging national and international concerns. The motivations for current school reform are as numerous as the definitions of reform. Motivations are economic, political, professional, and academic addressing such issues as empowerment (of teachers, students, parents), equity, social justice, social and cultural problems (drugs, teen pregnancy, single-parent families, etc.), expertise of teachers, quality of curriculum, quality and curriculum in teacher education, and literacy of students for the 21st century (Elmore, 1991; Goodlad, 1991; Hess, 1992; Bacharach, 1990).

Most school reform has taken place in isolated classrooms, schools, or school systems and the changes, if retained by those who pilot them, are rarely disseminated to the broader educational system (Elmore, 1991). Even broader and more longitudinal attempts at educational reform like Project 2061 (AAAS, 1989) to enhance scientific literacy of all American students for the 21st century will eventually result in a central curriculum (*Science for all Americans*) being implemented differently in different contexts across the nation. Since most public school reform is taking place in isolation, the key role that educational evaluators at these sites must play for the larger educational community is to share understandings about reform efforts as they occur within particular contexts. Generalizability or not (from the perspective of readers of educational evaluations of school reform) of findings cannot be determined without detailing contexts

within which the reform is attempted. Because of the cultural, ethnic, economic, and political diversity in the nation, one single approach to school reform is impractical. Educators at each site must determine what reforms are necessary to make the teaching-learning process the best it can be for their school.

School reform is not easy and it cannot be accomplished quickly. Funding for most school reform is short and policy-makers and funders typically want evaluation data which demonstrate effectiveness or not of a reform process within a year or two. Determination of "success" of school reform within such narrow time limits may be dysfunctional in that changes in student knowledge may not be demonstrated with current standardized test measures immediately, if at all. Many changes have been advocated in the name of alternative assessment, performance assessment, portfolio assessment and authentic assessment of student learning, but these approaches have not been well developed or tested across contexts. Meanwhile, most states have increased their use of standardized testing as a way of monitoring performance of local schools in the past decade (Elmore, 1991). It is critical to collect process evaluation data as well as student achievement data to determine overall impact of school reform.

The Community of Learners for Advancing Student Success Project

Through a faculty collaborative process which was developed at Fowler Drive Elementary School beginning in 1987, the faculty voted in February of 1989 to reorganize the instructional delivery system in the school (the first year they developed "thematic" units and the last two years they developed "interdisciplinary" units),

implement a "family structure" within the school, increase parents' involvement with their childrens' learning, and implement an Extended Literacy Instruction (ELI) program. The original goal of the Community of Learners for Advancing Student Success (CLASS) Project was to enhance student learning and attitudes through interdisciplinary instruction and the creation of smaller, more stable family units within the school. The smaller units were proposed to facilitate communication, parent involvement and teachers' instructional decision-making process in the large school. The school reform project at Fowler Drive Elementary School began in summer, 1989 and ended in summer,1992.

A major limitation of the evaluation of this project was the number of innovative things going on in the school which were not a part of the project. The year prior to the implementation of the project, many of the faculty had decided to implement a "whole language" learning approach using reading and writing workshop. Throughout the first year of the project, many teachers were confused about the relationship or not of whole language to the project. During the second year of the project, the school decided to be one of the pilot sites for the New York City Ballet curriculum. The curriculum provides information about the art of ballet and encourages a learning process that draws connections between areas of education and experiences in the child's life. The theme of the curriculum is "Storytelling Through Dance." All fourth grade students were involved with this curriculum during the second year of the project and fifth grade students were involved with it the third year of the project. During the third year, some teachers were involved in a Foxfire workshop and adopted

that philosophy for instruction. The notion of student directed curriculum resulted in a few of the teachers being opposed to pretest/posttest student assessment used in the project and caused them to question the whole school curriculum approach.

Evaluation of the effect of the school reform project was very difficult because of the large number of other curricular changes that were taking place in the school at the same time. Analysis of qualitative data provided an understanding of the effect of different components of the project from parents' and teachers' perspectives. One teacher's comment that was representative of teachers' reflections at the end of the project was, "I have experienced so many positive things. But I don't know if the positive things I've experienced are teacher sharing or because of the project." Another teacher said, "It's hard to put your finger on what the project is because there is so much going on. The problem is that every teacher does their own thing and picks the approach that they like at that time."

Sample

Educational reform is not easy, quick, or predictable. School reform takes place within the larger culture of a community, thus, changes in the community and school system impact schools. During the summer between the first and second years of the project, the county school system underwent major redistricting. As a result of this, the student population at Fowler Drive Elementary School dropped from approximately 870 to 490. The teaching staff was reduced from 55 teachers and 6 part-time teachers to 35 teachers. This resulted in physical plant changes in the school by the

elimination of instruction in trailers external to the main school building which had been used during the first year of the project.

Fowler Drive Elementary School is a kindergarten through 5th grade school in Athens, Georgia. The socio-economic level of students ranged from middle class to lower class. Sixty-six percent of the students were eligible for free lunch the first year of the project and sixty-seven percent were eligible the second year of the project. There is a high student transient rate with an approximate 25% turn-over rate every year.

During the 1991-92 school year, the final year of the project, Fowler Drive served approximately 484 students with a staff of 25 teachers, 1 principal, 1 assistant principal, a media specialist, and a half-time project director. The project had a full-time project director for the first two years. The 1992-93 school year has brought further changes which might affect continuation of the reform effort. The principal was transferred to a middle school in the same county. The project director assumed a position at the county central office. The media specialist who served as a part-time project assistant is no longer in the county. A few new teachers have joined the staff and some of the teachers who were a part of the reform effort have moved. It is interesting that in this case, as in most evaluations of school reform, there is no plan for continued evaluation of the impact of the reform beyond the funded years to see whether and how teachers continue to use what they have developed and change as the context changes.

Methodology

A triangulated evaluation design of qualitative and quantitative approaches was used. Qualitative data were collected to determine the impact of the project on teachers' attitudes, parents' attitudes, and to describe the process. Quantitative data were collected to determine the impact of the project on student learning in basic skills, student reading ability, and student attitudes. Triangulation of investigators, data collection methods, and data sources were used.

Bogdan and Biklen (1992) assert that researchers trying to combine good quantitative design and good qualitative design have a difficult time pulling it off, and rather than producing a superior hybrid, usually produce a piece of research that does not meet the criteria for good work in either approach. For this evaluation, a qualitative and a quantitative evaluator collected, analyzed, and interpreted data which addressed different objectives. The qualitative evaluator used student, parent, teacher, and administrator interview and open-ended questionnaire data to provide a description of the process used in the project and get participants' perspectives about different project components. She took observational fieldnotes during visits to the school throughout the three years. Qualitative data were analyzed using the constant comparative method of analysis (Strauss, 1987). Categories emerged from participant data and relationships among categories were examined to explain the impact of the project.

Quantitative analysis of student achievement data provided information about the effects of the project on student learning as measured by standardized tests used in

the county and state. Changes in state testing requirements affected grade levels and types of data which were available for the third year of the project. The only standardized tests which were required for all Georgia students in elementary schools were the mathematics and reading tests of the *Iowa Tests of Basic Skills* (*ITBS*) for grades three and five for the final project year. For the first two years of the project, *ITBS*, *COGAT*, and the Georgia *Criterion-Referenced Tests* (*CRT*) scores were available for all children in the school.

Different instruments were used to measure teachers' and students' attitude changes during the project. The Hall's *Stages of Concern Questionnaire* (*SoC*) was administered to teachers four times during the project. The focus for the questionnaire was thematic instruction for the first year and interdisciplinary instruction for the last two years of the project. There are seven stages of concern about which questions are focused in the questionnaire: awareness, informational, personal, management, consequence, collaboration, and refocusing. The *Arlin Hills Attitude Toward Learning Process Survey* (Arlin, 1976) was administered to all students in the school each year of the project. The instrument was a verbal/cartoon format. The student survey includes questions about use of time, teacher directiveness, contexts for learning, flexibility in the classroom, amount of homework, rates of learning, and peer collaboration in learning.

Two instruments were used to measure changes in student attitude toward self and others. The *Brookover Student Sense of Academic Futility Questionnaire* was used for the first two years and on the suggestion of the on-site review team in

August, 1991, the *Stanley Coopersmith Self-Esteem Inventory* (*SEI*) (Coopersmith, 1984) replaced the Bookover and was administered to students in fall, 1991 and spring, 1992.

Throughout the project, teachers struggled with the problem of student assessment. Many teachers who were totally committed to the "whole language" approach and interdisciplinary instruction felt that standardized tests did not assess the types of learning in which children were engaged. Portfolio assessment with a focus on student selection of work and development of self-assessment strategies was introduced and implemented in the second year of the project, but teachers abandoned it because most felt it was too time consuming. A few teachers maintained a portfolio approach of saving teacher-selected student work in files during the third project year. Teacher-constructed pretest/posttest assessment for each teacher-developed interdisciplinary unit was used the third year, but the quality of tests was inconsistent. Further, a few teachers who had taken a Foxfire approach workshop felt strongly that students should be actively involved in selecting the curriculum and thus felt that a pretest/posttest approach to student assessment was inappropriate. Some teachers worked with representatives from the Educational Testing Service to develop performance assessment for science objectives and two performance tests were administered to selected classes of students, but there was no scoring system in place to help evaluate performance. During the final focus-group interviews with teachers at the end of the 1991-92 academic year, almost all teachers said that they wanted student assessment strategies to be the focus of teacher staff-

development for the 1992-93 school year. Teachers want to investigate different approaches and try to find one which they feel matches the types of instruction that are being used at Fowler Drive.

Qualitative Findings

Constas (1992) suggests that qualitative evaluations of programs may receive the names of their categories directly from programmatic objectives. The CLASS Project had specific objectives, and each of those objectives was best evaluated either by qualitative or quantitative data collection and analysis. The categories for qualitative data, however, were not dictated by the objectives, but rather emerged from narrative interview and open-ended questionnaire data from teachers, parents, and administrators.

The Process. Teachers at Fowler Drive Elementary School believe that school reform takes time, that it is very complex, and that it is never ending. Teachers said that the process of determining the focus for school reform and trying different strategies and making changes when they felt things were not working was the most important thing which could be exported to other schools or school systems (See Fig. 1). They asserted that adoption of the process would be much more likely to result in needed reform in other schools than simple adoption of completed teacher-constructed interdisciplinary units. A comment written by one teacher was repeated in different ways by almost every teacher in open-ended questionnaires or interviews: *"They need to understand the PROCESS we went through. They need to understand*

that there's never a final 'product' because knowledge and education is ever changing." Teachers felt that they were on the "cutting edge" of educational innovation in the nation. They felt that a critical part of this process was their willingness to "take a risk" and try something new, evaluate its effectiveness with their students, and be able to discard everything that did not work and examine new approaches for adoption. In the final open-ended questionnaire, teachers were asked what the most positive aspect of the CLASS Project was for them personally or professionally and 10 teachers said professional growth experiences, 9 teachers said the opportunity for planning with teachers across grade levels, 7 teachers said the integrated interdisciplinary focus for instruction, and 4 said the enhanced faculty relationships. These responses fit into the two larger categories which emerged across all teacher data: 1) importance of collaboration, and 2) increasing knowledge about instructional strategies.

Although teachers felt that the process of reform is important, they often felt isolated from teachers at other schools within their own school system. One teacher said that negative encounters with those outside teachers were more frequent in the first two years, but that in the last year, teachers were more interested in finding out what had been implemented at Fowler Drive and how it had impacted teachers and students. One teacher characterized the negative perceptions of outsiders: "*Teachers at other schools look down on us at Fowler Drive. They see us as real different. When we got o meetings in the county, teachers don't listen to what we say when they find out we're from Fowler Drive. You don't want to tell people you're from Fowler.*"

Time, Multiple Changes, and Paperwork. Teachers felt that they were exposed to educational innovation in a way that had never been before and would not have been without the CLASS Project. They felt that this was the most important part of the project. At the same time, this process often caused problems. Across the three years, teachers asserted that the amount of time required by the project, large number of changes being introduced at once, and amount of paperwork were the most negative aspects of the project. Almost all teachers in the final interview said that their school reform effort included too many components. Teachers' suggestions to schools thinking of adopting their reform was to select only one aspect to change initially, have intensive staff development, and then implement and evaluate only that change. Consider additional school structure and curricular changes when the bulk of work for the first change is completed. When I asked teachers which component they would recommend first to adopting schools, they could not identify one without asserting that it could not be effectively implemented without other changes. One teacher said, "*That's a tough question because you can't change instructional strategies, school structure, or student assessment in isolation. It all affects the other. I guess that's the circular thing we got into.*" Another teacher said, "*It's ironic that the most positive parts of the process have also been the most negative things in the project. Time it takes was time away from classes or planning for classes often. We were excited about change, but there was always change and we never felt we completed anything. Planning in teams often resulted in insufficient planning with grade levels. We often had the feeling that nothing is ever done, but that is a part of*

change."

Data collected on the *Stages of Concern Questionnaire* indicated that teachers' greatest concern throughout the three years of the project focused on issues related to management, including time demands, scheduling, organization, and management of the process. This concern did not diminish over the course of the project. Data from this instrument certainly reflect statements by teachers across the three years in interviews and open-ended questionnaires.

Family Structure - Belonging and Competition. Teachers felt strongly that the family structure component was very effective when the school had close to 900 students and many classes conducted outside of the school building in trailers. Teachers felt that the most important outcome was that students had a sense of belonging that they did not have in the larger atmosphere. A concern of some teachers was that different family units within the school increased a competitive spirit among students from different groups, and teachers felt that this was not positive.

Teachers felt as strongly that the same family structure was ineffective, and perhaps even had a negative effect after the school population was reduced by half. Three areas of concern emerged relative to the family structure with the smaller population: inability to move problem children to a different family, insufficient resources, and lack of group diversity over years for proper student social development. Teacher concerns emerged about the inability to split problem groups of children or to move children when the parents had difficulties with the teachers in one unit. Some teachers felt that in the smaller school population, students did not

get a chance to develop socially because they stayed with the same children over multiple years and they did not have a chance to develop and change roles. Teachers felt the family structure made it very difficult to use resources effectively because all teachers within a family were basically teaching the same curriculum and needed the same resources. Teachers said that they would suggest that teachers in any large school adopt the family structure, but that in smaller schools it should not be implemented.

Parent Involvement. The first year of the project, Saturday workshops were conducted on topics of interest to parents about their childrens' learning. Childcare was provided for children during the parent workshops. While the low numbers of parents who attended the sessions judged their quality to be superior, these workshops were ineffective in increasing the number of parents involved in the educational process of their children. Teachers decided to abandon this format for parent involvement and develop some other strategy.

Teachers decided that integrating the interdisciplinary instructional strategy and student demonstrations of learning with parent involvement might increase parental interest in their childrens' learning. During the last two project years, there were four day-long "whole school" educational events to which parents were invited. These were interdisciplinary and cross-grade level events which focused on a single topic developed by students throughout the quarter. Teachers who are "specialists" in the school (music, art, physical education) had primary responsibility for structuring the

events. For each event there were teacher/student presentations, student presentations, presentations by invited community guests and speakers, displays, and short optional parent workshops. Parents could see their children present their learning in a variety of formats including some in which parents participated. The number of participating parents increased steadily through the final year of the project from 26 parents to 127 parents. Teachers asserted that some parents had felt intimidated at the Saturday workshops which were presentations by "experts" in an area of child development, but that they were quite relaxed and interactive at the whole-school events held on a weekday while children were in school. Some teachers were concerned that parents of students with problems were not attracted by the Saturday workshops or the whole-school events. One teacher said, "*These were very positive for those kids whose parents participated! However, we still have not reached parents who are reluctant - those who were (as kids)/are skeptical or cynical about school environments. I don't think we've changed very many parents' attitudes for the better.*"

Quantitative Findings

Many educational evaluators and researchers assert that evaluation questions should determine the methods used rather than the philosophical and theoretical position of the evaluator (Howe & Eisenhart, 1990; Reichardt & Cook, 1979). Filstead (1979) suggests that a blending of the assets of both approaches throughout an evaluation is optimal. The evaluator, unlike a researcher, often does not have the

luxury of being able to determine what project objectives will be the basis of an evaluation. She must use evaluation techniques which will determine whether project objectives have been attained. She must identify the stake holders in the educational context and the types of data they require for decision-making. And finally, the evaluator is compelled to make a judgment of the worth of an educational reform project within the educational setting rather than simply describe what has happened and why.

The CLASS Project had student outcome (cognitive and affective) objectives which required quantitative data collection. Interpretations of comparisons of student scores on standardized tests and attitude scales were complicated by the school district reorganization which reduced the student population in the school by approximately one-half after the first year, the high transient rate of students, and the non-project curricular innovations being implemented in the school at the same time as the project. Because of these and other emergent problems, approaches to quantitative data analysis changed a few times during the project.

Student Basic Skills. Student standardized test scores on the ITBS were not increased in a consistent manner across grade levels and across the three years of the project. Comparisons of ITBS test scores in reading and mathematics for the third grade students indicated no significant differences. Comparisons of ITBS test scores for fifth grade students across the three years of the project in reading indicated that fifth grade students in the second and third years of the project scored significantly higher than fifth grade students in the first year of the project. Comparisons of ITBS

Total Mathematics test scores for fifth grade students indicated that students in the second and third years of the project scored significantly higher than fifth grade students in the first year of the project.

Results of teacher-constructed pretest/posttests for the four interdisciplinary units in year three indicated that student knowledge increased as a result of the units. This finding must be interpreted knowing that tests were not consistent across teachers and that approximately one-third of the teachers each quarter did not use a pretest/posttest system where student learning gains could be measured.

Teachers' perspectives about the effect of CLASS on basic skills acquisition of students varied widely. Some teachers felt students' knowledge of basic skills had been radically improved and others indicated that they had reservations in some areas. Most teachers across grade levels felt student skills in reading and writing had increased as a result of the project. A small number of teachers expressed concerns about lack of covering basic skills and a few teachers felt lower performing students needed more structure than they were receiving. One teacher said, "*The jury is still out on the effect on basic skills. I sometimes worried that some basic skills got skimmed over - Time may be needed to really judge.*" Another teacher said, "*In basic skills, some of our kids are riding higher level kids coat tails. We're not emphasizing basic skills enough. We are more project oriented. Lower performing kids need more structured approaches to basic skills with drills and other things. We provide that and remediate basic skills some. A lot depends on which teacher they have - on which extreme they work.*" Most teachers across grade levels felt students' skills in

identifying connections across disciplines was greatly enhanced by interdisciplinary unit instruction.

Most parents who responded to the "parent report card" indicated that they feel basic subjects like reading, writing, science, mathematics, and social studies are either "satisfactory" or "excellent" at Fowler Drive. Comparatively few parents expressed any concerns about or suggestions for improving the curriculum. Only 7% of respondents felt that writing and mathematics instruction "needs improvement."

Based on the low numbers (10 out of 24) of students successfully discontinued from the Extended Literacy Instruction (ELI) component, and the large amount of time required for instruction of a student by a teacher, the one-to-one instruction was not successful. About half of the teachers in the school felt that the ELI component was one of the most successful aspects of the project because of the degree to which knowledge of new reading strategies used in ELI improved their ability to teach and assess performance of all of their students in reading and writing. They felt they were continually increasing their understanding of the teaching-learning process relative to reading because a group of the faculty began meeting regularly to discuss current research and books in the area which they selected and all read prior to discussions.

Student Attitudes. Data from the Brookover *Student Sense of Academic Futility Questionnaire* for the first two years of the project and data from the Coopersmith *Self-Esteem Inventories* used in year three of the project indicate that students' attitudes toward self and other class members were not significantly improved. There was very little change in student attitudes across years. Data on the Arlin-Hills Attitude Toward

Learning Process Survey indicate that students' attitudes toward learning did increase slightly in the third year, but did not increase to the 2.0 level which is defined as "positive as desirable" by the authors of the instrument.

Project Conclusion

Teachers, administrators, and parents at Fowler Drive Elementary School felt that the CLASS Project was successful. The project has not been validated, however, because members of the validation team felt that student standardized test scores did not demonstrate positive increases in student knowledge. Members of the validation team would have accepted alternative assessment data as "proof" of increased student learning, but none of the approaches attempted worked within a variety of contextual and educational limitations. Portfolio assessment took too much time and teacher anxiety was elevated because they felt they were not covering state and county mandated objectives adequately if they took time to do portfolio assessment as proposed. Performance assessment has not been developed enough for use across disciplines and grade levels. Teachers lacked knowledge of measurement needed to construct high quality and consistent pretests and posttests for teacher-constructed interdisciplinary units.

Teachers at the school say that they feel they will be in a "state of school reform" for the continuation of their professional lives. They now realize that teaching is a process of continual learning, seeking the best methods for instruction, and taking the risk of trying different things to determine their effectiveness with children in

specific contexts.

Discussion

School reform at Fowler Drive Elementary School from 1989 to 1992 took the form of structural change and curricular change. More important than the specific changes in the three years, however, the process in which educators were engaged during that time of reform resulted in a change in the way teachers defined "self" and "non-self" as well as their roles as professional educators. They moved from the world of the classroom into being professional educators interested in the most current educational issues, theories, and debates in the literature and at professional conferences. Groups of the faculty traveled to other innovative schools to talk to educators and observe ongoing educational reform. Some of the teachers began to research their own classrooms. Most teachers viewed the teaching-learning process differently than they had prior to the project.

Teachers viewed themselves as "risk-takers" to try educational innovations which they determined might enhance the teaching-learning process. They placed a high value on this in their culture of schooling. They viewed faculties at other schools not engaged in some type of reform as stale and uninteresting. They were concerned that teachers in other schools in their county viewed them as "weird" or trying crazy things, but they were assured that their reform effort had merit as a large number of faculty representative groups from schools all over the nation visited the school to see how the implementation of innovations was working. They did not want to leave Fowler

Drive and go to schools where reform was not being addressed eventhough they were experiencing a high level of stress and exhaustion from the large number of collaborative meetings for curriculum planning and development, the increased time for interdisciplinary and cross-grade level teacher planning, the large amount of paperwork and documentation, the frustration of trying to identify and acquire outside resources for learning experiences, the time required to read and critique professional literature, and other activities.

Students did not make significant gains on standardized tests, but teachers did not feel that they would. There were two major reasons for teachers' perceptions: 1) they did not feel that their approaches focusing on learning processes, learning demonstrated by performance, collaborative learning, and higher order thinking skills would affect student scores on standardized tests immediately; and 2) they decided as a faculty to stop teaching test-taking skills to students for three weeks prior to administration of standardized tests each year as had been done in the past.

Some insights about school reform in this context seem to speak to school reform in all schools. School reform takes a long time and requires more than a typical two-year funded project. Measurement of the effects of school reform on student learning and determination of degree of integration of innovation into existing structures and curricula generally require longitudinal evaluation beyond the boundaries of short-term funded projects. Teachers have more ownership in school reform if they help decide what changes are needed in their school. These teachers felt that curricula developed and selected by teachers to meet specific needs of their students would be far

superior to blanket adoption of curricula developed by external educators. School reform needs to be flexible so that changes can be made when teachers determine an innovative strategy is not effective for their students. Teachers need scheduled blocks of time in every day for collaborative planning, examination of and discussion of ideas in educational research and theoretical literature, identification and evaluation of learning resources, and coordination of ways to share their experiences with teachers in other settings. There needs to be a person or small committee of persons in the school who coordinate and evaluate the reform effort systematically and in an ongoing manner to provide feedback to teachers. Documentation and student assessment which reflect more active learner approaches to learning need to be developed. School administrators need to be aware that all faculty will not implement innovations at the same rate and need to provide sharing and support systems among faculty.

Conclusions

The school reform project at Fowler Drive Elementary School was very complex and fluid. The reform included structural and organizational school components as well as curricular components. Teachers asserted that the most positive outcome of the school reform project was understanding that reform is an ongoing process and that a description of the process they used is the most exportable component of the reform to other schools. Teachers were envisioning changes, studying educational innovation issues and research literature, attending workshops, developing curricula, traveling to other schools in the nation to observe innovations, implementing

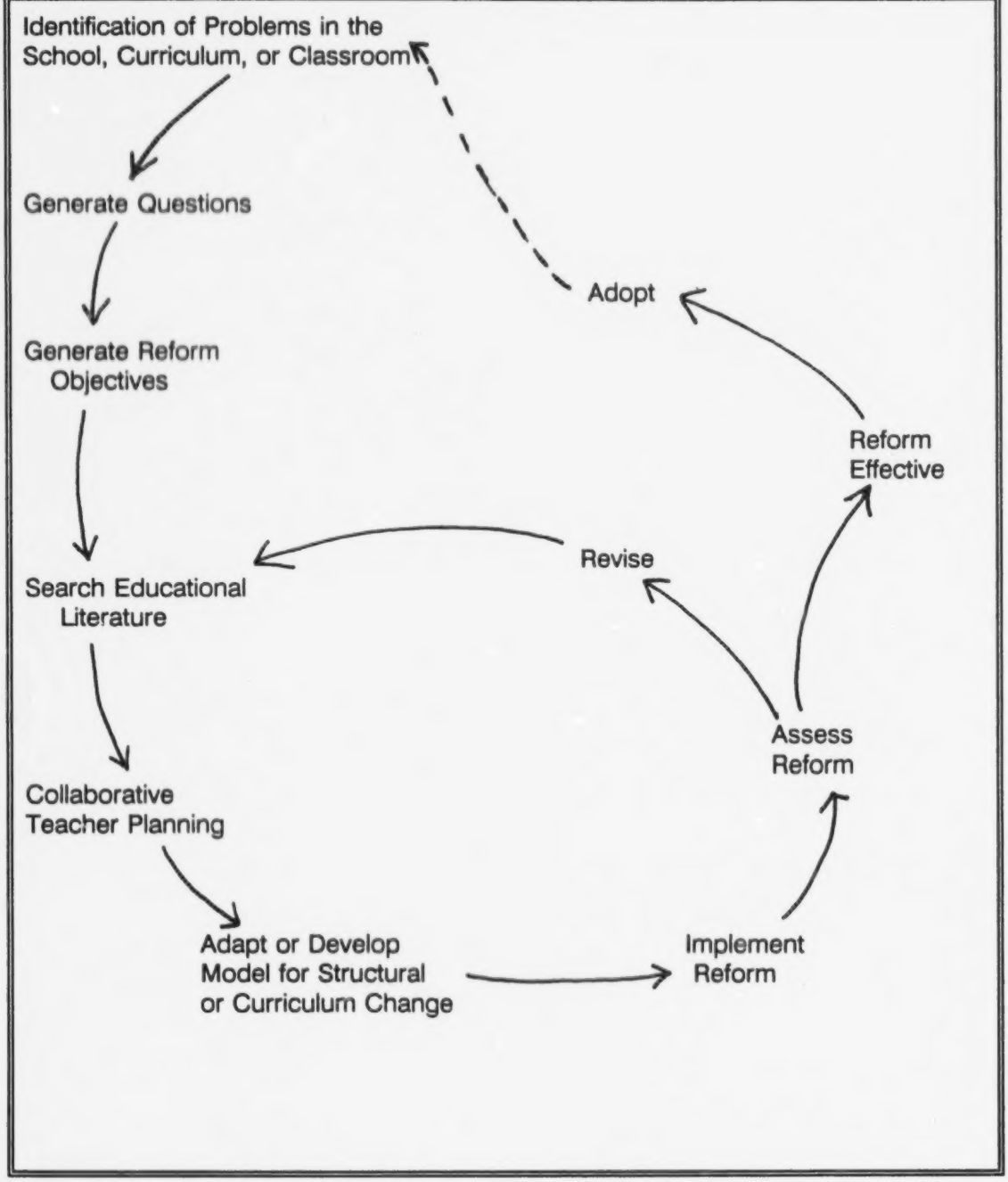
innovations in classrooms and the whole school, documenting the process, and evaluating effectiveness in an ongoing cyclical fashion throughout the project. This was all happening at the same time other major innovations were adopted in the school. Teachers and administrators were experiencing high levels of stress because of the lack of time to adequately complete any tasks. Additionally, major school district rezoning occurred at the end of the first year of the project which reduced the size of the school by almost half and many teachers were transferred to other schools. At the state level, requirements for standardized testing were changed after the second year of the project resulting in data which were available the first two years not being available for comparison in the final year of the project.

Both process and product evaluation data were required by different stakeholders in the process. The funding agency wanted data on the effects on student learning as well as data describing the process and detailing the effects on teachers, administrators and parents. State and local administrators wanted standardized test score data because those were used to compare schools within the district and districts across the state. Teachers wanted documentation of things which enhanced the teaching-learning process as well as those things which were barriers. As Guba and Lincoln (1989) assert, stakeholders are the users of evaluation information that they see as clearly responsive to the issues and concerns that *they* have. Policy decisions about educational practice based on both sets of data would be much more accurately informed about impact from multiple perspectives.

Because of the complexity of educational reform and the diversity of interest of

stakeholders, both qualitative and quantitative data should be collected. Each type of data provides understanding about aspects of school reform efforts that the other can not. Both evaluation approaches are labor and time intensive and as Bogdan and Biklen (1992) suggest, one evaluator attempting to do both might produce a less than exemplary product on both. Collaborative evaluation teams with a qualitative and a quantitative evaluator are the most effective in determining the impact of educational reform in schools. As Smith and Heshusius (1986) point out, the two approaches are based on different assumptions. By triangulating evaluators, each can base inquiry in the assumptions of the approach being used and the evaluation questions posed can be addressed with the appropriate methodology rather than the methodology driving the evaluation (Howe & Eisenhart, 1990). Evaluators can maximize use of their training, experience, and philosophical and theoretical understandings of their preferred methodology when they work in collaborative qualitative and quantitative teams to evaluate school reform. The resulting evaluation is a more holistic understanding of the impact of implementation of innovation in the culture of schooling.

Figure 1. Brown Model of School Reform Process at Fowler Drive Elementary school.



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